



Dart Hawkesbury
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Tel (613) 632-5200

500 8762

D119-646-041
Job Sheet 163148



Part No: D119-646-041

Job Qty: 1 ea

Part Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 10/31/17

Created By: Mario Poulin

Type: Stock

Description:

Note: DWG IIN-D119-646 REV D, D3887-041 REV E SHEETS 1,2,5,7,8,10,11 IPP RevA: New issue DD verified by:EC IPP rev B 10.02.22 per PAR 09-043 EC verified by:DD IPP REVC 12.11.05 (DEOD3887-B-1)(ecn 12-675) DD verf:JLM IPP REV:D 13.03.20 per chg003 ECN13-534 DD verf:JLM IPP REV:E 17.05.19 as per dwg D3887 rev.e DD verf:JFS

Ship Via:

Bill of Materials

Part/Part Name	Part Note	Serial No	Quantity	Location
D119-646-041 AW119 Replacement Skidtube with Wearpads - Fits LH or RH	DWG IIN-D119-646 REV D, D3887-041 REV E SHEETS 1,2,5,7,8,10,11 IPP RevA: New issue DD verified by:EC IPP rev B 10.02.22 per PAR 09-043 EC verified by:DD IPP REVC 12.11.05 (DEOD3887-B-1)(ecn 12-675) DD verf:JLM IPP REV:D 13.03.20 per chg003 ECN13-534 DD verf:JLM IPP REV:E 17.05.19 as per dwg D3887 rev.e DD verf:JFS		0.000	
ALS4-1032-130 Rivnut			0.000	
ALS4-1032-225 Rivnut	DWG REV B		0.000	
AN3C4A Bolt			0.000	
AN3C5A Bolt			0.000	
D2500-1-190 Ext'n -1" Beam Tube 4"	DWG REV H		0.000	
D2579 Crossbolt Spacer	DWG REV E IPP E 02.06.17 Now turned on Cobra NG IPP F 07.07.06 rev E dwg EC		0.000	
D2855-3 Cap	DWG REV C IPP RevA: New issue DD verified by:EC		0.000	
D2855-5 Cap	DWG REV C IPP REV:A 17.05.10 NEW ISSUE DD VERF:JFS		0.000	
D3492-5 Plug	DWG REV E IPP Rev:A 11.04.19 per dwg revC DD verf:EC			
D3672-1 Washer, Phenolic	DWG REV D IPP Rev:A New Issue 07-09-09 JLM Verified By:EC IPP Rev:B ECN 1056 07-11-13 DD			
D3681-1 Spacer	DWG REV A IPP Rev A new issue 07-10-30 DD verified by:EC IPP Rev:B Ecn 1056 Rev A dwg DD IPP Rev:C add seq 125 DD 10.05.03 verified by:EC			
D3847-1 Wearpad	DWG REV D SHEETS 1,7 IPP RevA: New issue DD verified by:EC IPP REV:B 14.11.25 AS PER DWG REV.C DD VERF:JLM IPP REV:C 16.03.31 AS PER DWG REV.D DD VERF:JLM			
D3847-11 Wearpad	DWG REV D SHEETS 2,7 IPP RevA: New issue DD verified by:EC IPP REV:B 16.03.31 AS PER DWG REV.D DD VERF:JLM			
D3885-1 Standard Web	DWG REV C IPP RevA: New issue DD verified by:EC			
D3903-1 Spacer	DWG REV B IPP RevA: New issue DD verified by:EC			
MS24694-C52 Screw				
NAS1149C0332R Washer				

Status: Stock

Part: **D119-646-041 B163148**

Created: 9/30/17 11:04 AM DART.MICHAUD-

FEBRILLE.VICTORIA



Serial No: **S000028**

Printed By: Goldston, Justin 10/2/17 10:44 AM

DART
AEROSPACE
S008762

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AW119 Replacement Skidtube with Wearpads – Fits LH or RH

PART NO: D119-646-041

Revision:

Operation: DC

Change No:

Mfg Date: 11/10/17

Job No: 163148

O-Ring

Job Routing

Op No	Operation	Qty	Due Date	Standard		Workcenter/Supplier	
				Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	1 Ea	10/31/17	0.00	0.00	Start up container	
100	DC	1 pcs	10/31/17	0.00	0.00	DC	
(200)	Powdercoat ✓ 17-11-13	1 pcs	10/31/17	0.00	0.00	Powdercoat1	7.1428 (0.14)
210	QC	1 pcs	10/31/17	0.00	0.00	QC3	12/11/13
(220)	HandFinish ✓	1 pcs	10/31/17	0.00	0.00	HandFinish4	0.2652 (3.77)
230	QC	1 pcs	10/31/17	0.00	0.00	QC5	12/11/13
(240)	HandFinish ✓	1 pcs	10/31/17	0.00	0.00	HandFinish4	0.2652 (3.77)
245	QC	1 pcs	10/31/17	0.00	0.00	QC5	
(250)	HandFinish ✓	1 pcs	10/31/17	0.00	0.00	HandFinish3	0.2652 (3.77)
251	QC	1 pcs	10/31/17	0.00	0.00	QC5	38
260	Packaging	1 pcs	10/31/17	0.00	0.00	Packaging3	9-88
270	QC21-FG	1 Ea	10/31/17	0.00	0.00	QC21	

Part Op 100 - Photocopy bluefile & type labels per PPP D119-646-041 CHG004

Descriptions: 200 - START TIME: 11:40 FINISH TIME: 11:40 O.V.T: 3:00 M 138014.

220 - 1-Install inserts as per Dwg D3887.

240 - 1-Install wearpads, gaskets as per Dwg D3887. Put sikaflex in insert before installing bolts and washers

NOV 22 2017

Job BOM

Part / Item	Component Name	Quantity	Operation	Special Comments
D119-646-041 B163148		1 Ea (1 ea)	90-Start up Operation	
ALS4-1032-130 - 5007389	Rivnut	33 Ea (33 ea)	230-QC	missing
ALS4-1032-225 - FM135788	Rivnut	1 Ea (1 ea)	240-HandFinish	Front Cap
AN3C4A - 5000533	Bolt	6 Ea (6 ea)	240-HandFinish	D2855-5X1
AN3C5A - 5001919	Bolt	26 Ea (26 ea)	240-HandFinish	
D2855-3 - F153291	Cap	1 Ea (1 ea)	240-HandFinish	
D3492-5 - F165574x12	Plug	24 Ea (24 ea)	240-HandFinish	
D3672-1 - F150074	Washer, Phenolic	2 Ea (2 ea)	240-HandFinish	
D3847-1 - F165501	Wearpad	5 Ea (5 ea)	240-HandFinish	
D3847-11 - F155829	Wearpad	1 Ea (1 ea)	240-HandFinish	
MS24694-C52 - FM137957	Screw	2 Ea (2 ea)	240-HandFinish	
NAS1149C0332R - 5001036	Washer	32 Ea (32 ea)	240-HandFinish	
NAS1611-005 - 5007808	O-Ring	24 Ea (24 ea)	240-HandFinish	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D119-646-041 B163148	1	1	0	0
230-QC	ALS4-1032-130	33	0	0	0
240-HandFinish	ALS4-1032-225	1	0	0	0
	AN3C4A	6	0	0	0
	AN3C5A	26	0	0	0
	D2855-3	1	0	0	0
	D3492-5	24	0	0	0
	D3672-1	2	0	0	0
	D3847-1	5	0	0	0
	D3847-11	1	0	0	0
	MS24694-C52	2	0	0	0
	NAS1149C0332R	32	0	0	0
	NAS1611-005	24	0	0	0

Part Specifications

Specifications could not be found.

Work Order Summary

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Criteria : Work Order ID: 163148 Item ID: D119-646-041 Product Family SKIDTUBES
Work Order Start Dates 6/22/2017 to 6/22/2017 11:59:59 PM Work Order Required Dates 7/14/2017 to 7/14/2017 11:59:59 PM
All References
Work Order Status Released

Work Order ID 163148 Required Qty 1.0000 Status Code Released
Item ID D119-646-041 Accepted Qty 0.0000 Scrap Qty 0.0000
Item Name AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Current Acct Value \$2,173.398

Start Date 6/22/2017 Required Date 7/14/2017 Completed Date

Standard	** Actual **		** Acct. Value **	** Variance **	** Variance % **
Direct Costs	Total	Each	Each	Each	Each
Material	\$612.676	\$0.000	\$514.369	\$514.369	100.00%
Labor	\$477.888	\$0.000	\$514.483	\$514.483	100.00%
Outplant	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Variable Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Fixed Burden	\$953.463	\$0.000	\$1,106.449	\$1,106.449	100.00%
Material Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
** Total **	\$2,044.027	\$0.000	\$2,135.301	\$2,135.301	

Item ID/Item Name	Required Qty	Issue Code	Issue Date	Issued Qty	Cost Amount
D2500-1-190 Ext'n - I' Beam Tube 4"	1.0000		6/26/2017	1.0000	\$43.492
D2579 Crossbolt Spacer	2.0000		9/12/2017	2.0000	\$4.387
D2855-5 Cap	1.0000		9/28/2017	1.0000	\$37.433
D3681-1 Spacer	12.0000		9/28/2017	12.0000	\$38.628
D3885-1 Standard Web	1.0000		6/27/2017	1.0000	\$541.764
D3903-1 Spacer	12.0000		9/12/2017	12.0000	\$45.068
Total Matl Amts:					\$710.773

Work Center HandFinish

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
LECO02		9/27/2017										
190			0.00	0.00	0.53	0.27	2.00	\$0.000	\$5.783	\$14.435	\$0.000	\$20.218

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Work Order Summary

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turc01											
	6/26/2017										
120		0.00	0.00	2.34	0.78	3.00	\$0.000	\$16.980	\$42.383	\$0.000	\$59.363
Total:		0.00	0.00	2.87	1.04	5.00	\$0.000	\$22.763	\$56.818	\$0.000	\$79.581

Work Center QC

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
conw01												
9/5/2017												
150			0.00	0.00	0.00	0.00	1.00	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Total:			0.00	0.00	0.00	0.00	1.00	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000

Work Center Skidtubes

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
conw01												
	9/5/2017											
140			0.00	0.00	0.67	0.67	1.00	\$0.000	\$17.348	\$33.668	\$0.000	\$51.016
ELLI01												
	9/12/2017											
160			0.00	0.00	3.44	3.44	1.00	\$0.000	\$89.444	\$173.594	\$0.000	\$263.038
9/14/2017												
160			0.00	0.00	1.89	1.89	1.00	\$0.000	\$49.235	\$95.556	\$0.000	\$144.791
PATR01												
	6/27/2017											
130			0.00	0.00	0.98	0.98	1.00	\$0.000	\$25.586	\$49.657	\$0.000	\$75.242
130			0.00	0.00	0.89	0.89	1.00	\$0.000	\$23.056	\$44.748	\$0.000	\$67.804
130			0.00	0.00	0.13	0.13	1.00	\$0.000	\$3.338	\$6.479	\$0.000	\$9.818
9/7/2017												
140			0.00	0.00	2.61	2.61	1.00	\$0.000	\$67.863	\$131.709	\$0.000	\$199.572
140			0.00	0.00	0.42	0.42	1.00	\$0.000	\$10.908	\$21.170	\$0.000	\$32.077
turc01												
	6/26/2017											
110			0.00	0.00	0.18	0.18	1.00	\$0.000	\$4.712	\$9.146	\$0.000	\$13.858
whit01												
	9/5/2017											
140			0.00	0.00	0.56	0.56	1.00	\$0.000	\$14.543	\$28.224	\$0.000	\$42.767
9/13/2017												
160			0.00	0.00	4.62	4.62	1.00	\$0.000	\$120.270	\$233.421	\$0.000	\$353.691
Total:			0.00	0.00	16.38	16.38	11.00	\$0.000	\$426.301	\$827.372	\$0.000	\$1,253.673

Work Order ID 163148

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Page 1

Item ID: D119-646-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 7/14/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

DAS

21

9-89

Approvals: Process Plan: Date: **JUN 22 2017**Tooling: Date: Run Start ***NR1***QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3887-041	E								
IIN-D119-646	D								

100

0.00

100

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPP D119-646-041 CHG005

110

0.00

110

Skidtubes

Memo

0.00

Skidtubes

1- inspect Mat'L D2500-1-190 for damage

2-Cut tube to length as per dwg D3887 (154.8")

3- Ensure squareness of ends and scribe batch#

1 X 17-EG-26
Dey

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By																																																									
								Lead hand / Supervisor Approval Verification																																																									
								QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

163148

Page 2

N900040100

Setup Start *NS1*

Stop ***NS2***

Customer:

Required Date: 7/14/2017 Req'd Qty: 1.00 * 1 *

Run Start *NR1*

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	Chemical Conversion Coat per QSI005 4.1	0.00							
120 HandFinish Hand Finishing	Memo	0.72				<u>1</u>	<u>0</u>	<u>17-06-26</u>	<u>DT</u> DAS 18 3-00
121	QC7-Inspect Chemical Conversion Coat	0.00							
121 QC Quality Control	Memo	0.00				<u>1</u>	<u>0</u>	<u>17-06-27</u>	DAS 18 3-00
122	QC5- Inspect part completeness to step on W/O	0.00							
122 QC Quality Control	Memo	0.00				<u>1</u>	<u>0</u>	<u>17-06-27</u>	DAS 18 3-00

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LQA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 163148

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Item ID: D119-646-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Stop ***NS2***

Start Date: 6/22/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/14/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130		0.00							
130						1	0	2017-06-27	
Skidtubes									
Skidtubes	Memo	0.00							
	1- Install drill Jig DT9477 drill X-bolt spacer pilot holes using 3/16" drill first side only.								
	2- 2nd side, locating from first saddle holes use DT9861 A/B to drill 2nd side fwd saddle holes.								
	3- 2nd side locating from fwd saddle drill remaining crossbolt spacer holes using DT9477								
	4- Open crossbolt spacer holes to finished size as per dwg D3887 (Detail R and T) and .313 holes (section J-J). ***DO NOT OPEN FWD Saddles Holes***								
	5- Deburr, blow out chips from inside of tube.								
	6- Bond web in place as per Dwg D3887 & QSI 015.								
	A/RSikaflex-291 M137526								
	Sikaflex expire date: 18-04-21								
	Start: _____ Time: _____								
	Finish: _____ Time: 14.50								
	***** (Adhere for 12 hours) *****								

2017/06/27
AP [Signature]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Work Order ID 163148

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Item ID: D119-646-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 6/22/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 7/14/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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135

QC5- Inspect part completeness to step on W/O 0.00

135

QC

Memo

0.00

Quality Control

DAS
18
3-001 0 BE
17-06-28

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order ID 163148

Thursday, June 22, 2017 10:14:08 AM

163148

Page 5

Item ID: D119-646-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 6/22/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 7/14/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140		0.00							
140						1	0	2017/09/07	AP
Skidtubes	Memo	0.00							
Skidtubes	1- Bend FWD end of tube using bender 1 and FOLIO 31 bend prog. D3887.***Must use bending aid DT9544, ensure proper positioning***								
	2- Cut FWD end of tube as per dwg D3887.***Verify measurment***								
	3- Buff out marks left from bending								
	4- Drill FWD cap holes using DT8215. Open FWD & AFT cap holes to 0.208"								
	5- Open FWD saddle holes to finished size as per dwg D3887								
	6- Drill FWD x-bolt spacer holes using DT9816 and open to finished size (verify measurement)								
	7- Drill Tow ring hole, using DT10047 locate from FWD saddle hole. (verify measurement). Open to finished size.								
	8- Drill 1.87" and 3.74 holes using DT10045 A&B locate from FWD saddle hole. (verify measurement) as per dwg.								
	9- C'sink FWD cap hole as per detail "M"								
	10- Drill holes for wearpads using DT8931, open to 0.297".								
	11- Countersink crossbolt spacer holes, and prepare tube for welding, deburr.								
	12- Deburr and blow out chips from inside of tube.								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Work Order ID 163148

Thursday, June 22, 2017 10:14:08 AM

163148

Page 6

Item ID: D119-646-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 6/22/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 7/14/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC5- Inspect part completeness to step on W/O	0.00							
150									
QC	Memo	0.00							
Quality Control									

BE
1 0 17-09-12

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 163148

Thursday, June 22, 2017 10:14:08 AM

163148

Page 7

Item ID: D119-646-041

Accept

N9000040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 7/14/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

0.00

160

Skidtubes

Skidtubes

Memo

0.96

NOTE: TACK IN 2 MOST FWD X-BOLT SPACERS AND TEST FIT FWD
GROUND HANDLING FIXTURE, IF FIXTURE FITS WELL THEN
PROCEED. FIXTURE DT10091.

1-Insert crossbolt spacers. Weld as per QSI 004 and Dwg D3887. Remember to
back drill each hole before welding the other side. Use aluminum rod
A/RAluminum Rod ML37133

2-Grind cross bolt welds flush as per Dwg D3887. Ensure no pin hole.

3-Counterbore 5/16" x 0.750" deep as per Dwg D3887.

4- Deburr & Scribe batch # on Aft end of tube.

5- Pick D2855-5 cap and transfer drill missing hole. Deburr and identify cap
with skidtube batch#.

170

QC5- Inspect part completeness to step on W/O 0.00

170

QC

Quality Control

Memo

0.00

TEST FIT USING FIXTURE DT10091.

DAS
16
9-89

11/1/26

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐				
Date : _____	Step #: _____	QTY Effective : _____			MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			Completed By	
					Lead hand / Supervisor Approval Verification	
					QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER : _____						

Work Order ID 163148

Thursday, June 22, 2017 10:14:08 AM

163148

Page 8

Item ID: D119-646-041**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** AW119 Replacement Skidtube with Wearpads - Fits LH or RH**Start Date:** 6/22/2017 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 7/14/2017 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 0.00							9-89 17/06/20
190 *190* HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 Memo Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.	0.00 0.44							① 2017-09-27 74
200 *200* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum Memo ***MASK AREA SHOWN ON SHEET 7, NOTE 9***	0.00 0.00							

START TIME: _____
OVEN TEMPERATURE: _____
FINISH TIME: _____

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By																																																									
								Lead hand / Supervisor Approval Verification																																																									
								QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

Thursday, June 22, 2017 10:14:08 AM

Page 9

Accept

Setup Start *NS1*

Stop ***NS2***

Stop ***NS2***

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Stop *NR2*

**Insp.
Stamp**

0.00

0.00

0.00

Memo

0.00

0.00

0.00

Memo

0.00

0.00

0.00

Quality Control

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

Thursday, June 22, 2017 10:14:08 AM

Item ID: D119-646-041

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Stop ***NS2***

Start Date: 6/22/2017 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 7/14/2017 Req'd Qty: 1.00 * 1 *

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID**Tool #**

Plan

**Accept
Qty**

Reject
QtyReject
Number

**Insp.
Stamp**

240

0.00

240

0.00

HandFinish

Memo

1-Install wearpads, gaskets as per Dwg D3887. Put sikaflex in insert before installing bolts and washers

A/R Sikaflex-240/-291

Sikaflex expire date:

2-assemble o'ring to plug as per dwg D3492 and apply o'ring lube

A/R 55-o'ring lube batch:

3 -Inspect for foreign objects as per QSI 024

4 -Install D2855-3 Cap and seal with Sikaflex. Clean excess adhesive.

A/R Sikaflex-240/-291

Sikaflex expire date:

5 -Install insert in D2855- Cap.

Install cap and seal with Sikaflex. Clean excess adhesive.

A/R Sikaflex-240/-291

Sikaflex expire date:

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																				
OTHER :																									

. Thursday, June 22, 2017 10:14:11 AM

• **Parent Item:** D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP RevA: New issue DD verified by:EC IPP rev B
10.02.22 per PAR 09-043 EC verified by:DD IPP REVC 12.11.05
(DEOD3887-B-1)(ecn 12-675) DD verf:JLM IPP REV:D 13.03.20 per
chg003 ECN13-534 DD verf:JLM IPP REV:E 17.05.19 as per dwg
D3887 rev.e DD verf:JFS

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2855-5		Manufactured	No			160	Each	12.0000	1	1			
D2855-5 Cap													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG002		12							
				162208		12							
ALS4-1032-225	AELS8-1032-225	Purchased	No			240	Each	2,629.000	1	1			
AI S4-1032-225 Rivnut													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				FG		25							
				M134975		20							
				M135998		5							
				FP001		2204							
				M135603		40							
				M135920		38							
				M135998		2115							
				M136265		11							
				ST556		400							
				M136579		400							

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Picklist Print

Thursday, June 22, 2017 10:14:11 AM

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

240

Each

808.0000

6

6

AN3C4A

Bolt

Location

Loc Qty

Loc Code

FG

20

122814

20

FP001

153

M136450

23

M136740

8

M136986

20

M137075

43

M137164

2

M137361

57

OVER002

600

M137507

150

M137587

250

M137820

200

ST350

35

M135704

35

D2500-1-190

Manufactured

No

110

Each

108.0000

1

1

D2500-1-190

Ext'n - 'I' Beam Tube 4"

Location

Loc Qty

Loc Code

HALL

18

151612

18

LG002

90

159717

90

17-06-26
DY

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐								
		OTHER :							

Picklist Print

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Page 3

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

D2579 Manufactured No 140 Each 110.0000 2 2

D2579

Crossbolt Spacer

**

BE 17-09-12

Location

Loc Qty

Loc Code

LG001

110

141711

4

162087

106

D2855-3 Manufactured No 240 Each 4.0000 1 1

D2855-3

Cap

**

2

Location

Loc Qty

Loc Code

FP001

4

151614

3

153291

1

NAS1611-005 Purchased No 240 Each 382.0000 24 24

NAS1611-005

O-RING

**

Location

Loc Qty

Loc Code

FP001

382

m136184

7

m136192

1

m136377

22

m137017

100

m137164

52

m137710

42

m137769

158

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Shop Packet Print

Page 3

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Root Cause		FAULT CATEGORY																																																															
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Misidentified ☐	Past Due ☐																																																																

Picklist Print

Thursday, June 22, 2017 10:14:11 AM

Page 4

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

D3492-5

Manufactured No

240

Each

302.0000

24

24

D3492-5

**

Plug

Location

Loc Qty

Loc Code

FP001

302

133396

21

155493

5

157341

38

161682

43

162345

135

162820

60

D3672-1

Manufactured No

240

Each

356.0000

2

2

D3672-1

**

Washer, Phenolic

Location

Loc Qty

Loc Code

FG

10

85222

10

FP001

346

150074

346

D3681-1

Manufactured No

160

Each

167.0000

12

12

D3681-1

**

Spacer

Location

Loc Qty

Loc Code

LG001

167

160402

167

8/17/09/2
B 164473x4

8

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
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Root Cause		FAULT CATEGORY																							
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Picklist Print

Thursday, June 22, 2017 10:14:11 AM

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

D3847-1

Manufactured No

240

Each

56.0000

5

5

D3847-1

Wearpad

Location

Loc Qty

Loc Code

FP001

56

153503

15

155281

5

156958

4

161945

10

161946

10

161947

12

D3847-11

Manufactured No

240

Each

19.0000

1

1

D3847-11

Wearpad

Location

Loc Qty

Loc Code

FP001

19

151986

1

155829

6

159114

8

162014

4

D3885-1

Manufactured No

140

Each

11.0000

1

1

D3885-1

Standard Web

Location

Loc Qty

Loc Code

LG002

11

152609

1

156109

10

1 2017/06/27 AP [Signature]

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

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Page 6

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

D3903-1

Manufactured No

160

Each

140.0000

12

12

D3903-1

**

BL17-09-12

Spacer

Location

Loc Qty

Loc Code

LG001

140

152993

1

157542

11

162344

80

162888

48

12

ALS4-1032-130

AELS4-1032-130

Purchased

No

220

Each

7,436.000

30

30

AI S4-1032-130

**

Rivnut

Location

Loc Qty

Loc Code

CCK004

5000

M133077

0

M137820

5000

FG

100

FG

M135442

50

M136579

50

FP001

2175

M133077

3

M136579

2172

st555

161

M136579

161

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Thursday, June 22, 2017 10:14:11 AM

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C5A	Purchased	No	240	Each	928.0000	26	26
--------	-----------	----	-----	------	----------	----	----

AN3C5A

Bolt

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	5	
122800	5	
FP001	657	
M137361	657	
OVER002	200	
M137710	200	
ST350	66	
M135442	66	

NAS1149C0332R	Purchased	No	240	Each	4,974.000	32	32
---------------	-----------	----	-----	------	-----------	----	----

NAS1149C0332R

WASHER

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	1470	
m137597	1470	
GA	508	
m133284	22	
m136444	486	
ST260a	2000	
m135408	0	
m136741	0	
m137851	2000	
ST266	996	
m137381	996	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

Thursday, June 22, 2017 10:14:11 AM

Work Order ID: 163148

163148

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 6/22/2017

Required Date: 7/14/2017

Start Qty: 1.00

Required Qty: 1.00

MS24694-C52

Purchased

No

240

Each

34.0000

2

2

MS24694-C52

SCREW

Location

Loc Qty

Loc Code

FP001

34

m135978

34

DQA: _____ Date: _____

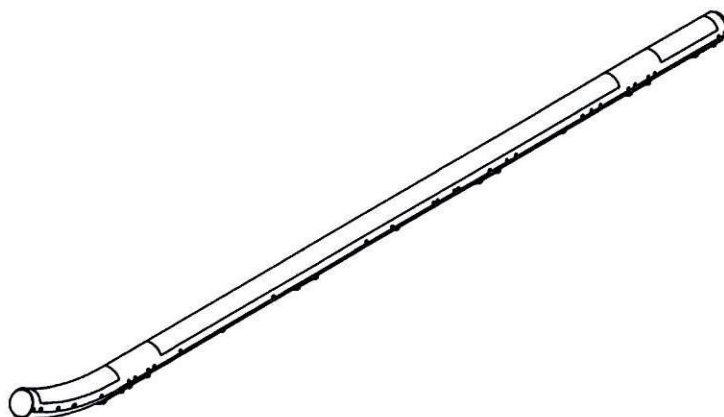


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER :									



D3887-041 STANDARD SKIDTUBE ASSY WITH WEARPAD(SHOWN)
D3887-043 STANDARD SKIDTUBE ASSY WITH WEARPLATE (SIMILAR)
D3887-045 STANDARD SKIDTUBE ASSY WITH TRAINING WEARPLATE (SIMILAR)

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 WITHOUT NOTICE
 WORK ORDER
 NO. 163148 MJS
1706-22

E	COMPLETE REDRAW, ADDED ASSY DETAILS -3, -051 & -053. SEE PREVIOUS REV. FOR DETAIL. POWDER COAT REMOVED FROM SADDLE AREA SEE DETAIL F. REF PARTS-421. ADDED STRUCTURAL PROVISIONS TO ALLOW FOR THE INSTALLATION OF THE D119-648-313/314 SKIDTUBE PROTECTOR KIT. REF PART17-577. CHANGE QTY OF D2855-3, ADDED D2855-5 CAP ASSEMBLIES, ADDED INSTRUCTIONS TO LOCATE INSERT HOLE FOR D2855-5 CAP. REF PART17-583	AJS / WK	17.02.03
D	REVISED BEND TOLERANCES FOR MANUFACTURABILITY, 135.07 WAS 134.04 (ZN D5-8), ADD 5.07 (ZN C2-8), ADD 118.8 (ZN D5-8), DELETE GASKETS (BOM, SH 2)	DB	13.09.20
C	(SHT1, P/L, ZN C2-2, C3-2, C4-2) ITEM 13, QTY 2 WAS 4, ITEM 42, QTY 32 WAS 34, ITEM 44, QTY 30 WAS 32, ADD ITEM 46, MS24684-C52 WAS ANSCSA, 2 PLCS, (ZN C1-5, C1-6, B4-7) Ø0.201 CSK Ø0.385 X 100" WAS Ø0.214 THRU, ADDED DETAIL F (ZN C6-5, C8-6, B2-7), ADD ITEM 10, D2579 CROSS BOLT SPACER (ZN D4-1, A8-7)	DB	13.02.19
B	ALS4-1032-130 WAS AELS-1032-130 (ZN C4-1, C5-7, C3-7); ADD DT8931 (ZN A8-1); ADD 134.04 (ZN C4-8); D2855-3 WAS D2575 (ZN D4-1, C7-2, C2-2, C7-3, C2-3, C7-4, C2-4); ANSCSA WAS ANSCA (ZN C6-2, C2-2, C6-3, C2-3, C8-4, C2-4); Ø0.313 WAS Ø0.328 (ZN C4-5, C4-6, C2-7 & B3-7) REVISED NOTE IV (ZN B3-7)	RF	09.06.30
A	NEW ISSUE	RF	09.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	WK	EUGENE, OR	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	DD	D3887	SHEET 1 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	A119 STD SKIDTUBE ASSY	NTS
DATE	17.02.03	COPYRIGHT © 2008 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

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 2017-05-08
 CW 17-519

D



E

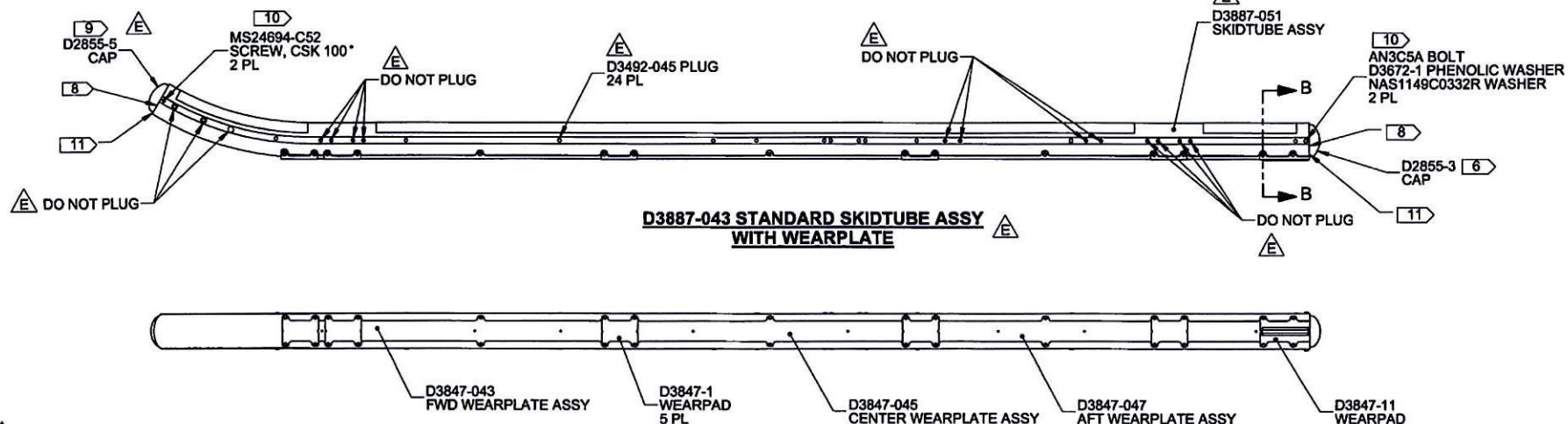
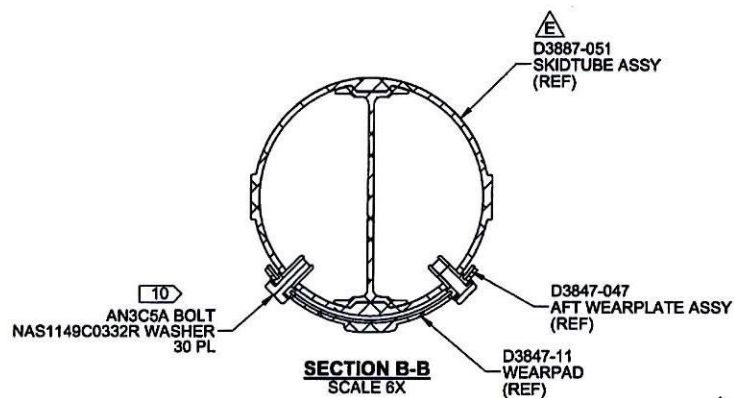
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ITEM	QTY	P/N	DESCRIPTION
	X	D3887-043	STANDARD SKIDTUBE ASSY WITH WEARPLATE
1	1	D2855-3	CAP ASSY
2	1	D2855-5	CAP ASSY
3	24	D3492-045	PLUG ASSY
4	2	D3672-1	PHENOLIC WASHER
5	1	D3847-043	FWD WEARPLATE ASSY
6	1	D3847-045	CENTER WEARPLATE ASSY
7	1	D3847-047	AFT WEARPLATE ASSY
8	5	D3847-1	WEARPAD
9	1	D3847-11	WEARPAD
10	1	D3887-051	SKIDTUBE ASSY
11	1	ALS4-1032-225	INSERT
12	32	AN3C5A	BOLT
13	2	MS24694-C52	SCREW, CSK 100°
14	32	NAS1149C0332R	WASHER



NOTES:

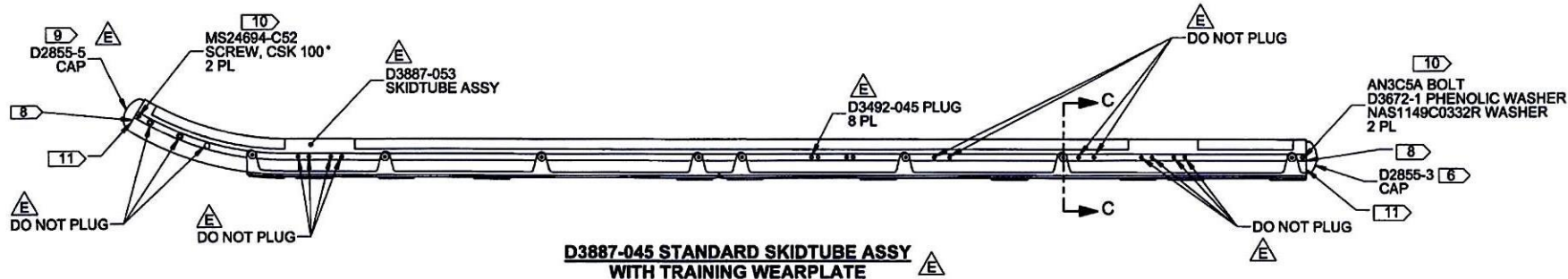
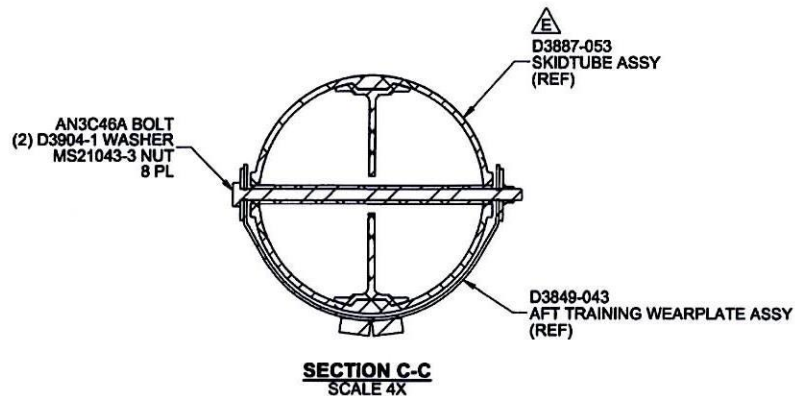
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3887-043" AND BATCH NUMBER PER QSI 044 6.4 ON THE ID OF THE TUBE, BEFORE INSTALLING THE AFT D2855-3 CAP
- 7) WEIGHT: 37.0 lbs
- 8) RELIEVE INNER RIDGE OF EXTRUSION, AS NEEDED, TO ALLOW FOR INSTALLATION OF D2855-3 AND D2855-5 CAP ASSY, ALODINE BARE MATERIAL
- 9) USE D3887-051 SKIDTUBE ASSY TO LOCATE AND BACKDRILL UNDRILLED INSERT HOLE INTO D2855-5 CAP. OPEN HOLE TO Ø0.297, ALODINE BARE MATERIAL AND INSTALL ALS4-1032-225 (OR AKS7-1032-225, OR ALS7-1032-225, OR AKS4-1032-225) INSERT ON INSIDE OF CAP.
- 10) SEAL FASTENERS WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT
- 11) SEAL MATING SURFACES WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT

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DESIGN	RF	DART AEROSPACE USA, INC.	
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CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	DD	D3887	SHEET 3 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	A119 STD SKIDTUBE ASSY	NTS
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ITEM	QTY	P/N	DESCRIPTION
	X	D3887-045	STANDARD SKIDTUBE ASSY WITH TRAINING WEARPLATE
1	1	D2855-3	CAP ASSY
2	1	D2855-5	CAP ASSY
3	8	D3492-045	PLUG
4	2	D3672-1	PHENOLIC WASHER
5	1	D3849-041	FWD WEARPLATE ASSY, STD GEAR
6	1	D3849-043	AFT WEARPLATE ASSY, STD GEAR
7	1	D3887-053	SKIDTUBE ASSY
8	16	D3904-1	WASHER
9	1	ALS4-1032-225	INSERT
10	8	AN3C48A	BOLT
11	2	AN3C5A	BOLT
12	8	MS21043-3	NUT, SELF-LOCKING
13	2	MS24694-C52	SCREW, CSK 100°
14	2	NAS1149C0332R	WASHER



NOTES:

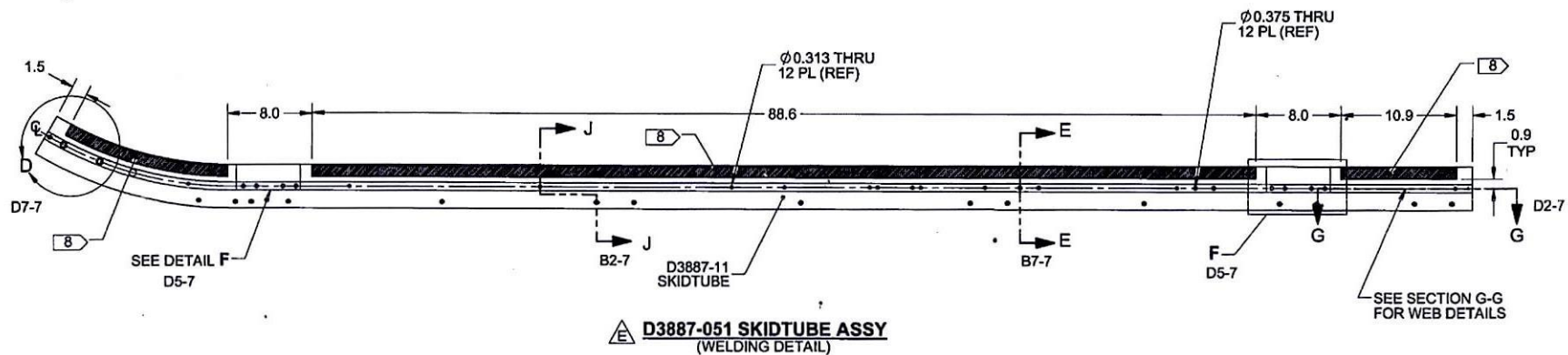
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3887-045" AND BATCH NUMBER PER QSI 044 6.4 ON THE ID OF THE TUBE, BEFORE INSTALLING THE AFT D2855-3 CAP
- 7) WEIGHT: 38.1 lbs
- 8) RELIEVE INNER RIDGE OF EXTRUSION, AS NEEDED, TO ALLOW FOR INSTALLATION OF D2855-3 AND D2855-5 CAP ASSY, ALODINE BARE MATERIAL
- 9) USE D3887-053 SKIDTUBE ASSY TO LOCATE AND BACKDRILL UNDRILLED INSERT HOLE INTO D2855-5 CAP. OPEN HOLE TO Ø0.297, ALODINE BARE MATERIAL AND INSTALL ALS4-1032-225 (OR AKS7-1032-225, OR ALS7-1032-225, OR AKS4-1032-225) INSERT ON INSIDE OF CAP.
- 10) SEAL FASTENERS WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT
- 11) SEAL MATING SURFACES WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT

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CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	DD	D3887	SHEET 4 OF 11
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DE APPR.	DS	A119 STD SKIDTUBE ASSY	NTS
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ITEM	QTY	P/N	DESCRIPTION
	X	D3887-051	SKIDTUBE ASSY
1	2	D2579	CROSS BOLT SPACER
2	12	D3681-1	CROSS BOLT SPACER
3	1	D3885-1	STANDARD WEB
4	1	D3887-11	SKIDTUBE
5	12	D3903-1	CROSS BOLT SPACER
6	30	ALS4-1032-130	INSERT



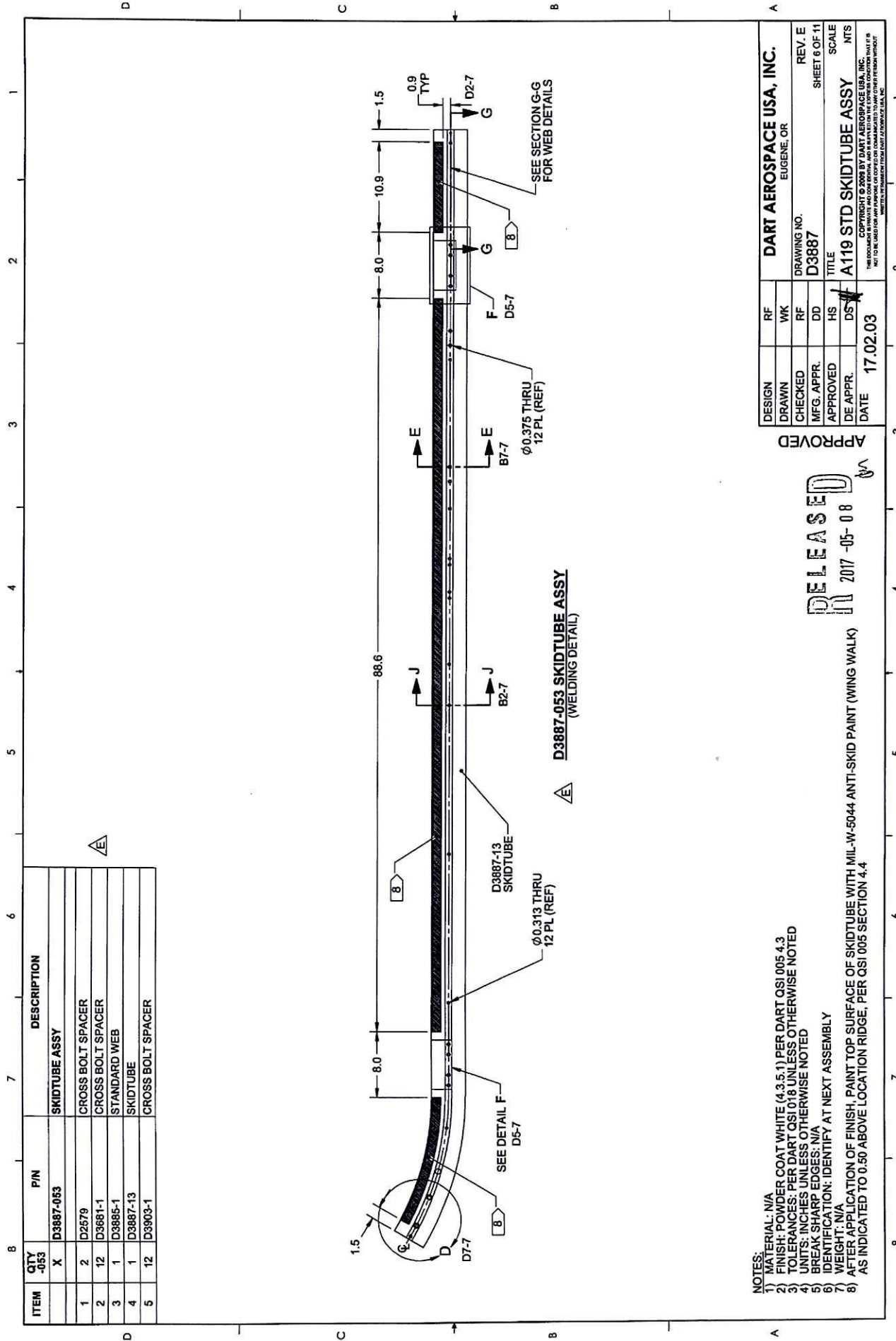
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY AT NEXT ASSEMBLY
- 7) WEIGHT: N/A
- 8) AFTER APPLICATION OF FINISH, PAINT TOP SURFACE OF SKIDTUBE WITH MIL-W-5044 ANTI-SKID PAINT (WING WALK) AS INDICATED TO 0.50 ABOVE LOCATION RIDGE, PER QSI 005 SECTION 4.4

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MFG. APPR.	DD	D3887	SHEET 5 OF 11
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ITEM	QTY -053	P/N	DESCRIPTION
	X	D3887-053	SKIDTUBE ASSY
1	2	D2579	CROSS BOLT SPACER
2	12	D3881-1	CROSS BOLT SPACER
3	1	D3885-1	STANDARD WEB
4	1	D3887-13	SKIDTUBE
5	12	D3903-1	CROSS BOLT SPACER

DESIGN	RF	WK	DART AEROSPACE USA, INC.
DRAWN			EUGENE, OR
CHECKED	RF		DRAWING NO.
MFG. APPR.	DD		D3887
APPROVED	HS		TITLE
DE APPR.	DS		A119 STD SKIDTUBE ASSY
DATE	17.02.03		SCALE
			NTS

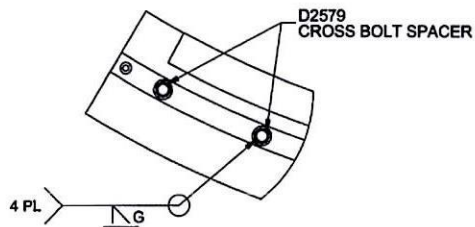
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY AT NEXT ASSEMBLY
- 7) WEIGHT: N/A
- 8) AFTER APPLICATION OF FINISH, PAINT TOP SURFACE OF SKIDTUBE WITH MIL-W-5044 ANTI-SKID PAINT (WING WALK) AS INDICATED TO 0.50 ABOVE LOCATION RIDGE, PER QSI 005 SECTION 4.4

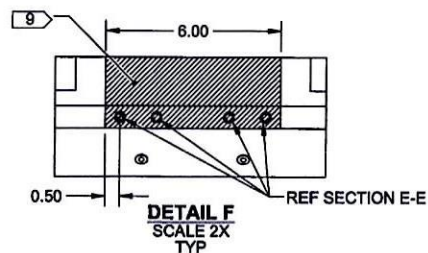
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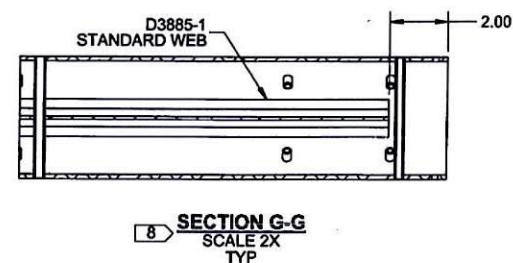
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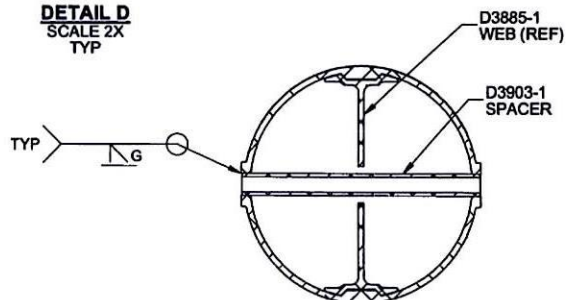
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SCALE 2X
TYP



DETAIL F
SCALE 2X
TYP

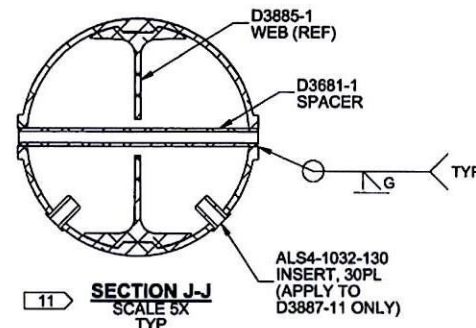


SECTION G-G
SCALE 2X
TYP



SECTION E-E
SCALE 5X
TYP

(FOR 12X $\phi 0.375$ HOLES
PER SKIDTUBE)



SECTION J-J
SCALE 5X
TYP

(FOR 12X $\phi 0.313$ HOLES
PER SKIDTUBE)

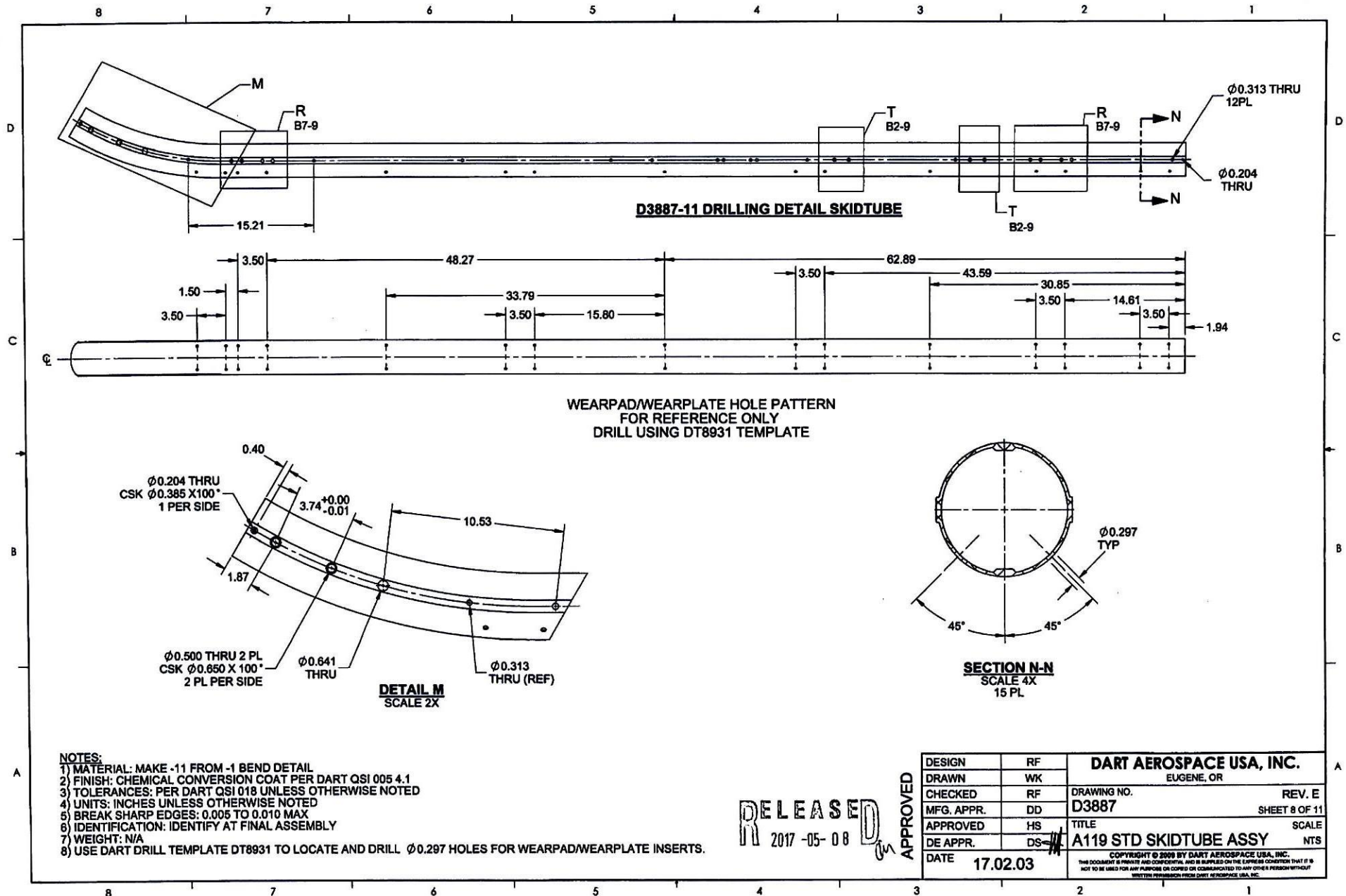
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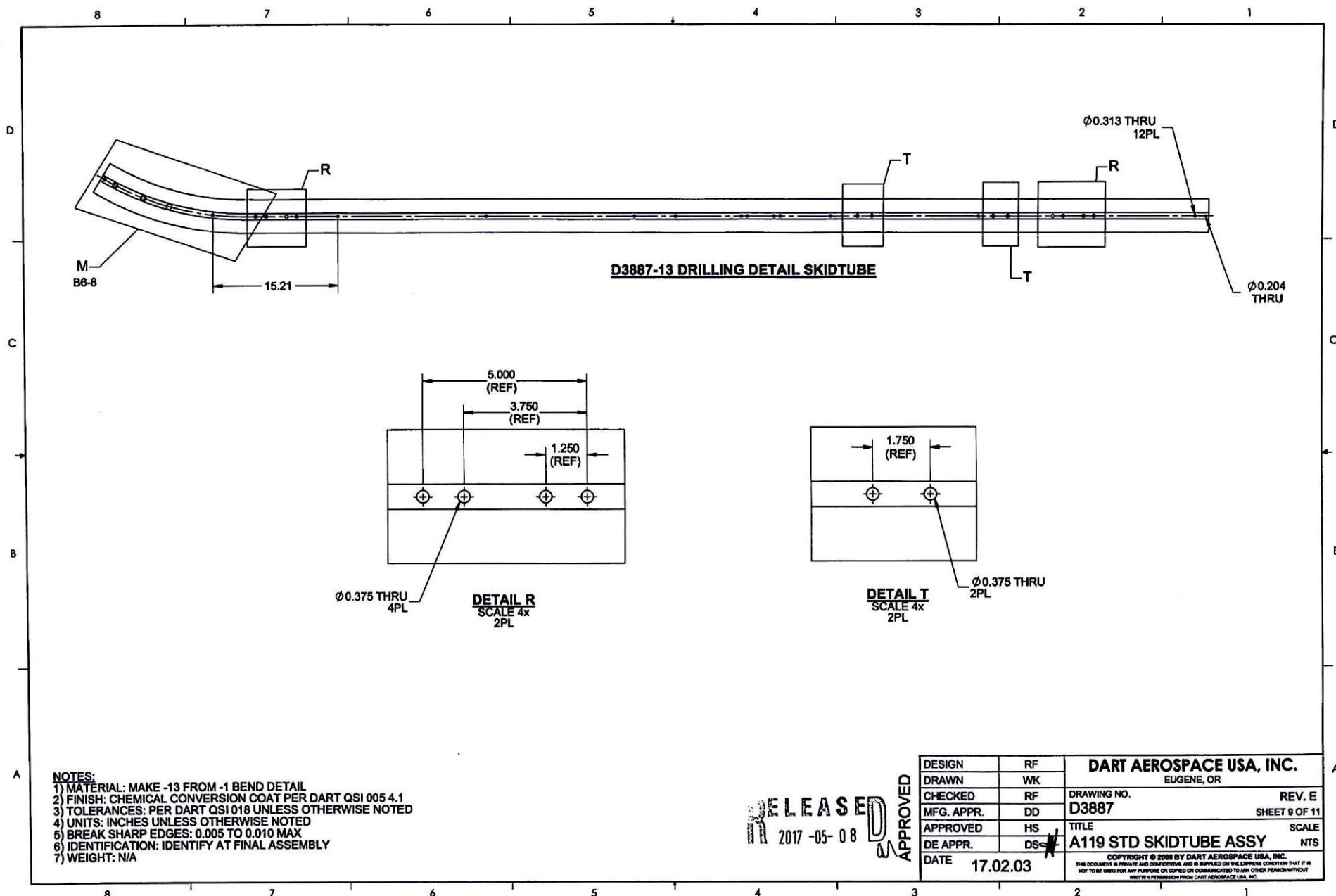
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AT FINAL ASSEMBLY
- 7) WEIGHT: N/A
- 8) INSERT D3885-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING. ENSURE HOLES LINE-UP
- 9) MASK THIS AREA AND DO NOT POWDER COAT
- 10) AFTER DRILLING AND BENDING ASSEMBLY, PERFORM THE FOLLOWING FOR THE SECTION E-E $\phi 0.375$ HOLES ONLY:
 - i) CHAMFER HOLES $\phi 0.475 \times 45^\circ$
 - ii) INSERT D3903-1 SPACER
 - iii) WELD INTO PLACE AND GRIND FLUSH
 - iv) C'BORE TO $\phi 0.313 \times 0.75$ DEEP
 - v) DEBURR HOLES
- 11) AFTER DRILLING AND BENDING ASSEMBLY, PERFORM THE FOLLOWING FOR THE SECTION J-J $\phi 0.313$ HOLES ONLY:
 - i) CHAMFER HOLES $\phi 0.354 \times 45^\circ$ OR 0.050 DEEP $\times 45^\circ$ (BOTH SIDES)
 - ii) INSERT D3681-1 SPACER
 - iii) WELD INTO PLACE AND GRIND FLUSH
 - iv) DEBURR HOLES
- 12) WELD PER DART QSI 004

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MFG. APPR.	DD	D3887	SHEET 7 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	A119 STD SKIDTUBE ASSY	NTS
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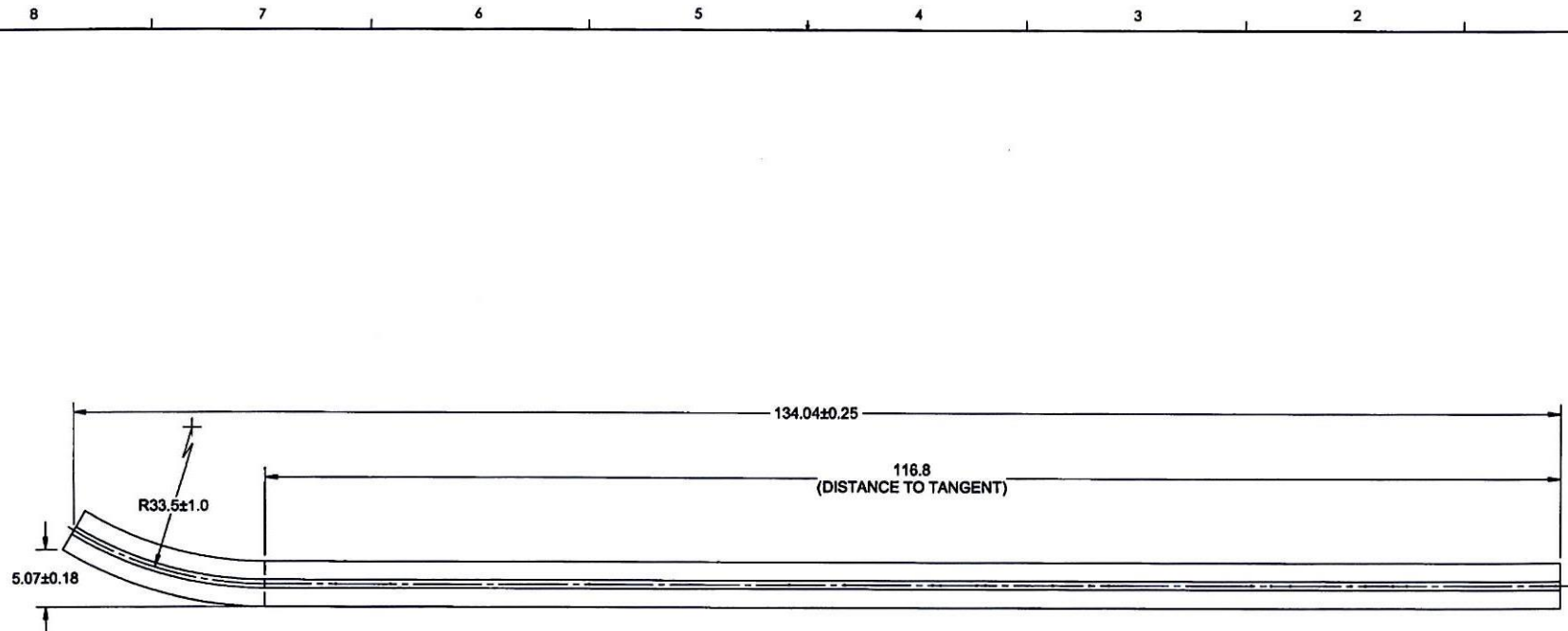


- NOTES:**
- 1) MATERIAL: MAKE -13 FROM -1 BEND DETAIL
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY AT FINAL ASSEMBLY
 - 7) WEIGHT: N/A

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D3887-1 BEND DETAIL SKIDTUBE

NOTES:

- 1) MATERIAL: MAKE -1 BEND DETAIL FROM -3 PILOT HOLE DETAIL
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AT FINAL ASSEMBLY
- 7) WEIGHT: N/A
- 8) DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 8.5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP 0.020" DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.

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